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Corporate Governance and its Effect on Bond Yield Spreads

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Abstract

This paper investigates, whether including more corporate governance provisions or adding takeover defenses at annual shareholder meetings has a material impact on bond yield spreads. The analysis focuses on close call votes at annual shareholder meetings and uses a regression discontinuity design. This provides a clean estimate that accounts for the market expectations which form prior to the voting event and can therefore deliver more accurate estimates. I found that the bond yield spread increases by 0.29 percentage points if a governance proposal is passed but decreases by -1.77 percentage points if a takeover defense is added, after the voting percentage has surpassed the required threshold.

Keywords: Regression discontinuity, Corporate Governance, Takeover defenses

1. Introduction

This paper focuses on the effect corporate governance, implemented through shareholder voting, has on bond yield spreads, as a measure of bond returns. Using a discontinuous regression design (rdd), I will analyze different types of corporate governance and their impact on bond returns. Shareholder voting is used as the causal event, which triggers a change in corporate governance principles of a corporation. Corporate governance has been on the forefront of corporations' agendas for over decades now. While this has not changed, the topics and their impact on firm performance have changed over time. The impact of corporate governance proposals on stakeholders of the firm changed accordingly. Research papers have been published about the effect of corporate governance on shareholder returns as well as bond returns. The most notable authors in this field are: Cunat, Gine and Guadalupe (2012), Cremers, Nair and Wei (2007) and Liu and Wu (2017), who also use a discontinuous regression design.

Different corporate governance areas focus on various issues. The different approaches, can, largely be attributed to what the current issue is at the time. Later the decision is often reversed due to similar trends. For example, antitakeover protections were implemented in the early 1990s, amongst them, golden parachutes and high board remuneration, both of which were removed in the late 2000s. Therefore, the impacts of different governance mechanisms are controversial. Takeover defenses are commonly said to benefit bondholders, as they protect them from leverage increasing takeovers (Liu & Wu, 2017). On the other side, takeover defenses increase management entrenchment and allow executives to lead the firm inefficiently (Hart, 1983).

The G-index (Gompers, Ishii and Metrick, 2001), separates firms into either the *dictatorship* or *democracy portfolio.* Certain governance frameworks distribute power to either the management or shareholders. The authors discover that governance delivers superior returns to

shareholders, as higher governance holds the management board more accountable and ensures that decisions are made in the best interest of shareholders. Additional studies found that managers, if not disciplined by the possibility of takeovers or shareholders, start to enjoy "the quiet life" (Bertrand & Mullainathan, 2003), which results in lower firm performance. Therefore certain disciplining mechanisms are necessary, such as a threat of takeovers (Hart 1983) to ensure executives work effectively to improve firm performance. The authors discover that increased competition reduces managerial slack to the benefit of stakeholders. The necessity for shareholders, as the most powerful stakeholders, to discipline management for the overall improvement of firm performance is titled *the management disciplining hypothesis* (Ashbaugh-Skaife, Collins, & LaFond, 2006). It essentially means that governance and shareholder activism work efficiently, in a value-creating way, to discipline and lead management in a direction that is beneficial for every stakeholder of the firm.

As shareholders are the only direct owners and interest group of a firm, they will always direct management in such a way that it increases abnormal stock returns or benefits them in some other way in the short or long term. There are many other stakeholders of a firm, who intervene through other channels. Shareholders often use these channels as well. Institutional investors often try to intervene directly through management rather than by voting and only use proxy proposals as a last resort. Shareholder voting outcomes are typically non-binding for the management. Nonetheless, they are a very strong indication of the wishes of shareholders and often result in the successful implementation of the proposed task (Ertimur, Ferri, & Stubben, 2010). Other stakeholders of the firm are affected by the decisions made by shareholders and have little impact on those decisions but often bear the consequences whether positive or negative. Bond prices and yield spreads are directly impacted by the firm characteristics and riskiness but creditors do not have the decision power to tilt the odds in their favor. According to *the management disciplining hypothesis* this should not be a problem, as shareholders merely

discipline the management and steer them in a direction which is beneficial for all stakeholders, also creditors (Ashbaugh-Skaife, Collins, & LaFond, 2006).

An opposing theory, *the wealth redistribution theory* (Ashbaugh-Skaife, Collins, & LaFond, 2006), states that shareholders appropriate wealth from bondholders through their decision making and vote in such a way that it increases their own value to the detriment of the bondholders. Shareholders elect to increase the riskiness of the firm or undertake restructuring of business units, which destabilizes the firm. These actions can increase firm performance and deliver better returns for shareholders, but in the short-term bondholder returns are threatened. This phenomenon is titled asset substitution, where a firm presents a safe project to creditors when negotiating for loan contracts and then ex post exchanges the safe project for a riskier project. Hence, the riskiness and probability of default for the creditors increases, without any real compensation for the additional risk. The firm value rises after the investment in a risky project, but as bondholders only receive a certain fixed amount in interest and principal payments they do not bear the benefits. Therefore, return performance is irrelevant to them past the point of covering their interest and principal payments. The effects on bondholders, following these actions, are an increased uncertainty and riskiness, which decreases bondholder value. In general, covenants are used to deter from such behavior and the expectation is that such potential behavior would be priced into the bond yield. However, the true probability is often difficult to determine.

Evidence for both opposing arguments can be found in literature. On the one side, higher takeover defenses are useful for bondholders because a takeover involves a lot of change and uncertainty, which negatively impacts bond returns. It also means that if takeovers are unlikely, takeover prevention covenants are not required, which is more convenient for creditors. On the other side, takeovers improve management supervision and increase firm performance (Bertrand & Mullainathan, 2003) (Hart, 1983). This paper examines the different impacts that

governance topics have on bond yield spreads. Instead of looking at the G-index (Gompers, Ishii, & Metrick, 2001), I use an event study to analyze shareholder voting effects on corporate governance and their impact on bond performance. No research before has used an rdd approach to analyze the interaction of governance and bond yield spreads. This research can hopefully contribute to the existing literature by bringing more clarity into the market about how bondholders are influenced by decisions made by shareholders. Additionally, if firms better understood the impact a shareholder decision had on bondholders they could negotiate with bondholders to mitigate this effect to ensure the firm's cost of debt does not increase for the next round of capital allocation. Therefore, the research question of this study is:

What is the effect of corporate governance implemented through shareholder voting on bond performance?

Using shareholder voting data from Institutional Shareholder Services (ISS) and Riskmetrics as well as bond yield spreads from TRACE the research question is answered in favor of the *wealth redistribution hypothesis.* This research paper finds strong support that bond yield spreads decrease by -1.77 percentage points if a takeover provision is added by vote at the annual shareholder meeting, while yield spreads increase 0.29 percentage points if general governance mechanisms are added.

2. Literature Review

The main hypotheses, concerning corporate governance and bond performance, of scholars focus on two main theories, namely the *wealth redistribution theory* and the *management disciplining hypothesis*. The question is essentially, whether shareholder actions benefit or harm bondholders. This is tested in various studies, using different methodologies, such as regressions or discontinuous regressions. I will focus not only on the results in my discussion

but also on the methodologies, as it is an essential part of my own argument for why I chose a regression discontinuity design.

2.1 Support for the Wealth Redistribution Theory

One pair of authors, Liu and Wu (2017), examine the impact of corporate governance on the change in debt contracts by banks, according to the *wealth redistribution theory*. They find that the yield spread of bank debt, after antitakeover provisions are removed, is higher and bank debt contracts require stricter covenants. Otherwise, this indicates that the incentive to shift the risks towards bondholders, when striving for higher returns, increases and that the firm becomes more volatile after a narrow vote, as the firm is in a transitional period. Therefore, they effectively illustrate, that with the increase in shareholder empowerment the old bondholder-shareholder conflicts are amplified and become costlier, for creditors. They use a regression discontinuity design, to analyze their theory. A rdd methodology is better able to distinguish between the effect that shareholder activism has on shareholder returns and noise in the returns, as it takes into account the expectations that the market forms prior to the voting event. Most studies implicitly or explicitly assume that the market does not form such expectations and instead reacts to the full extent once the event occurs. Thus, this rdd model is better suited for the market inherent behavioral patterns that are generally hard to observe, as it allows for a variation in expectations before the event and also takes into account the reaction a few days after the voting event. Liu and Wu (2017) limit their analysis to shareholder voting in relation to the removal of a takeover related G-index provision. Their argument is that takeovers are costly for debtors and often involve increased risk. Therefore, debtors, unlike shareholders, appreciate antitakeover protection provisions as they protect debtors from the risks involved in a change of ownership and thus punish the removal of such provisions with more covenants and higher yield spreads.

Cremers, et al. (2007) study a similar issue, the authors measure corporate governance by utilizing several factors defined in the G-index (Gompers, Ishii, & Metrick, 2001), and tested the impact of institutional blockholders, takeover defense provisions, and the G-index itself. Cremers et al. (2007) find that blockholders and weak takeover defenses negatively impact bondholders and usually increase the number of covenants as well as bond spreads. This, illustrates the point that bondholders value strong takeover defenses, as the change of ownership often makes a firm more volatile. A takeover typically results in restructuring of assets, and increased debt, which alters the seniority of debt and at the same time diminishes the asset base which serves as collateral for many debt instruments. The risk of default increases often after a takeover, if the debt has not been restructured. Thus, to add extra protection debtholders include covenants which secure their interests, should a takeover occur. The increased riskiness is also represented by an increase in bond spreads. Antitakeover repeal proposals inherently exhibit conflicts of interest, as management is reluctant to change their antitakeover protection, because it increases their risk of being dismissed. Consequently, the interests of management and bondholders are aligned on these issues and oppose those of shareholders.

Another study by Klock Mansi and Maxwell (2005) examines the impact of antitakeover provisions on cost of debt financing and the authors make a similar argument as Cremers et al. (2007), namely that takeovers are threatening to bondholders in various ways. They list as possible reasons: a revocation of promise from management to recapitalize the firm, increase shareholder pay-outs, and to pay-out excess liquid assets and focus the firm through divestures and spin-offs. All these factors reduce the liquidity and collateral of the firm and therefore increase the risk of default for bondholders. Especially hostile takeovers are said to be harmful for bondholders. The authors mention two competing hypotheses, which they aim to test in their research, namely the *shareholder interest hypothesis* and the *managerial entrenchment hypothesis* (Klock, Mansi, & Maxwell, 2005). The first hypothesis argues that

takeover defenses increase the price of sale and therefore benefit all shareholders, whereas the *management entrenchment hypothesis* argues that antitakeover defenses induce management to indulge in opportunistic behavior. Their data indicates that firms with stronger management rights, and therefore strong antitakeover provisions have lower cost of debt financing and firms with stronger shareholder rights, and less antitakeover provisions have higher cost of debt financing. They go on to argue, that there is an agency cost of debt, which mainly results from different interest between shareholders and bondholders. Otherwise shareholders require monitoring, enforcing, credibility, and constraints on the side of the bondholder. If these actions are not undertaken bondholders often face an expropriation of wealth from shareholders which then invest in higher risk projects than previously held within the firm. This leads to a higher risk for bondholders with a larger upside potential only captured by shareholders. Therefore, covenants and other monitoring instruments are used to prevent shareholders from acting in their sole interest and mitigate these risks.

Klock et al. (2007) find in their regression testing that the results are in line with the *shareholder interest hypothesis*, meaning firms with strong management rights and weak governance have lower cost of debt financing. Finally, they conclude, that the negative relation between governance and spreads is larger within firms with more takeover defenses and this in turn indicates that "hostile takeovers could be partially financed by expropriating bondholder's wealth" Klock et al. (2005). Accordingly, governance provisions that give more power to shareholders enable them to take away wealth from bondholders. These studies all focus on the wealth redistribution hypothesis and manage to find support for this theory. There are various additional research articles on this topic, however due to spatial constraints I selected the three most important articles, in relation to my research.

Following the research studies, the first hypothesis posed in this study therefore is the effect of corporate governance on bond yield spreads, which according to the *wealth*

redistribution hypothesis should decrease bondholder value for each addition of a governance mechanism.

H1a: Adding a corporate governance provision through shareholder voting increases bond yield spreads.

To go into more detail, it was suggested by Liu & Wu (2017), that takeover defenses have a particularly strong effect on bondholders, as decreased takeover defenses promise more uncertainty and volatility in the future, and lower bond returns. I have modified the data to show an addition of antitakeover protection, because certain observation added or removed antitakeover provisions. Therefore, the second hypothesis arises to test if the addition of a takeover defense has a particularly strong effect in isolation.

H2a: An increase in takeover defenses through shareholder voting decreases bond yield spreads.

2.2 Support for the Management Disciplining Hypothesis

According to Hart (1983) a competitive market reduces management slack, which means that certain mechanisms are beneficial to align executives with shareholders as well as bondholders. They separate between two types of firms, *entrepreneurial companies* and *managerial firms*. While *entrepreneurial firms* are run in the interest of their owners, *managerial firms* are run in the interest of their managers. Under the assumption that *entrepreneurial firms* perfectly incentivize and discipline managers there are still certain factors, which can be improved by increased competition. Firm owners are rarely aware of the underlying input costs, which are relevant for firms, thus even under ideal supervision shareholders might not be aware of certain managerial slack, as long as profit expectations are met. Therefore, this research article delivers meaningful results supporting the *management disciplining hypothesis*. Bertrand and Mullainathan (2003) also find evidence that if managers are potected from takeovers they enjoy the quiet life, by driving less extreme wage negotiations

and paying generally higher input costs, while investing less. The authors argue that a certain threat of takeovers and corporate governance are neccesary to incentivize executives to take action and actively manage the firm. These two studies therefore show, that management often needs to be disciplined to ensure better firm performace.

Following the *management disciplining hypothesis*, the interaction effect for both hypotheses would reverse. So, the inclusion of corporate governance mechanisms as well as the addition of antitakeover protection would benefit or harm bondholder returns and decrease or increase bond yield spreads respectively. Hypotheses 1b and 2b are therefore.

H1b: Adding a corporate governance provision through shareholder voting decreases bond yield spreads

H2b: An addition in takeover defenses through shareholder voting increases bond yield spreads.

3. Methodology

In order to conduct the analysis, the data is retrieved from the database WRDS and uses values from Riskmetrics and ISS data about shareholder voting, as well as bond yields originating from TRACE. I modify the bond yields into spreads by taking the difference of the firms' bond yields and the US Treasury yield on the same day with the same maturity as the firms' bonds. The timeframe used in my model is 2006 to 2017, which provides a large enough dataset to obtain significant results. In total, I receive 24.068 data points of individual shareholder proposals, which then condensed down based on the matching of available bond data and the 10% distance of vote shares from the passing threshold results in 1512 proposals. Matching these voting outcomes to all outstanding bonds of each company at the voting dates yields 18,957 individual observations. The model assumes that shareholder voting outcomes can be priced into the market if the outcome of the vote is clear. To illustrate this effect, I

develop a model similar to what Cunat et al. (2012) present in their paper to explain different shareholder expectations.

I modify this model to fit to bondholder expectations (Figure 1). The vote share percentage at shareholder meetings is measured as v which represent votes passed in favour of a proposal. If $v \geq 0.5$ then the proposal will be implemented with certainty and the value to the bondholders becomes $B(v) = \overline{B}$, where $\overline{B}$<0. My data includes votes with a threshold of either 50% or 66% so accordingly with an interval of either 40-60% or 56-76%. In the following I will take the majority threshold as an example of my explanation, but the theory stays the same with a 66% threshold. For the basis of this research an assumption is made that the probability and value to bondholders is discrete, for the model to deliver meaningful results. The value to bondholders if a proposal is not approved anywhere between $0 \leq v < 0.5$ remains unchanged at $B(v) = 0$, however if the proposal is passed for values of $0.5 \leq v \leq 1$ the value to the bondholders decreases, as the governance proposal passed by shareholders is wealth expropriating, according to hypotheses 1a and 2a, and therefore the value to bondholders decreases to $B(v) = \overline{B}$. This discrete change in value to the bondholders is what I aim to measure with my regression discontinuity design. The total change is not clearly observable in the market, because bondholders form previous opinions about the voting outcomes and its impact on the firm, which is taken into account in bond prices even before the vote has been cast. The market manages to relatively accurately predict the changes in voting outcomes at the firm level if the votes are relatively clear cut from the start, the more the voting share moves towards the middle the more uncertain the market reaction. Therefore, my figure includes a second line which depicts the expectations of bondholders in the market and therefore decreases as v increases.

The market expectations are modelled by $E(B|v)$. The excess return observable and usable in my model is therefore the difference between the value to bondholders $B(v)$ and the expectations made by bondholders. $X(v) = B(v) - E(B|v)$ shows the actual excess return in the market. $X(v)$ is zero when the vote shares are very large or very small, because at both ends of the scale the outcome is clear. However, the closer the vote share gets to the 0.5 mark the more uncertainty exists. Therefore, the predictions of the market become more imprecise and the excess return for close call votes is therefore more noticeable on the day of the vote. Because at $v \approx 0.5$, $E(B|v) \approx 0.5\,B$. The expectation of the value to bondholders is continuous with $E(B|v)$, however the value to bondholders itself $B(v)$ is discontinuous and changes discretely when the vote percentage has surpassed the 0.5 mark. Therefore, the abnormal returns observable when the results are published are also discontinuous at the majority threshold (Cunat, Gine, & Guadalupe, 2012). The difference between the abnormal returns for a proposal that narrowly passes and one that narrowly fails is equal to the value of the proposal to bondholders. I can conclude $X = \left(\overline{B} - E(B|v)\right) - \left(0 - E(B|v)\right) = \overline{B}$. Thus, the total value of the proposal to bondholders can be deducted from the difference in abnormal returns of close call votes around the discontinuity. The value to bondholders is hard to measure and I will use bond yield spreads as a measure of bondholder excess return. Here, the plotted effect would reverse, when compared to figure 1, as a higher yield means less value for bondholders and a lower yield indicates more value captured by bondholders. Therefore, the jump in the model should be positive, as I suspect that the value to bondholders decreases ex post a passed corporate governance proposal. So, the yield should increase.

There are three critical assumptions. Firstly, the firm characteristics have to be random and be the same on average on both sides of the discontinuity (Assumption 1), meaning that there is no significant difference in firm characteristics or voting expectations which weigh the vote in one or the other direction and thus indirectly interact with the regression analysis. Secondly,

the voting expectations cannot differ significantly on either side of the majority threshold, as this would mean different base assumptions which would negate the expressiveness of the analysis (Assumption 2). Thirdly, once a vote is passed the probability of implementation increases as opposed to previous expectations before the vote and is significantly different from the changed probability of implementation if the vote did not pass (Assumption 3). The expectations of outcomes are roughly the same before the votes, as the expectation lies around the majority threshold. Because shareholder voting is not binding for the management, some proposals are passed, yet never implemented by management. Consequently, the effect to the bondholders is mitigated by this knowledge and would be stronger if the proposal was binding, meaning the proposal would be implemented with certainty and accordingly impact the bondholders to the full extent. Therefore, $B(v)$ to the right of the threshold is not as negative as it would be otherwise and slightly more negative to the left of the majority threshold.

This effect might even be more pronounced with regards to close call votes, as in that case management has a better reason to deter from the voting outcome, as the vote is so close to the passing threshold, meaning they can decide the implementation of the proposal at their own discretion. Additionally, $B(v)$ could include the probability of future proposals being passed and submitted. As the probability of success increases incrementally with each proposal being passed by shareholders. Therefore, $E(B|v)$ will most likely also contain this expectation, making the expectations of bondholders' returns asymmetrical around the majority threshold. This factor does not negate the research, as long as $E(B|v)$ is continuous and the probability of implementation is discontinuous, X can be used to measure the value to bondholders. The only factor that changes with these different assumptions is that $X \neq \overline{B}$. To truly get the value of $\overline{B}$, X should include the new founded expectations of implementation of a proposal as well as the proposing and passing of future proposals and their effect on bondholders. For all these reasons

a regular regression analysis would not work in this particular context and therefore a discontinuity regression design is more expressive.

I start with my model by assuming that there is the shareholder voting event, on a governance issue A in a firm f, which is at time t, which can influence the bond yield of an outstanding loan $y_{f,t+\tau}$. The votes passed in favour of the proposal are represented by v_{ft}^{A}. If v_{ft}^{A} surpasses the threshold of 50% (66%) of votes, then the dummy variable $D_{ft} = 1$. $\varepsilon_{f,t\tau}$ represents the error term. If my assumption of the unpredictability of voting outcomes for those narrow votes holds, then the variable describing the left-hand side of the votes, so below the passing requirement should have a different polynomial property and a different coefficient than the variable describing vote shares above the threshold. This is expressed by the factors $f_l\left(\sum_{A=1}^{N} v_{ft}^{A}, \gamma_{\tau}^{A,l}\right)$ and $f_r\left(\sum_{A=1}^{N} v_{ft}^{A}, \gamma_{\tau}^{A,r}\right)$ Additionally, the expression needs to account for lag of the response which could occur several days after the vote took place and therefore τ will analyze the market reaction at time $t + \tau$. The variable τ can take a value of up to five days after the voting event. As most of the effect should have been fully realized by then. Therefore, as the vote takes place at time t the impact will be realized between t and $t + \tau$.

This equation employs a regression discontinuity design, as it is the best design for this particular event study to include prior expectations, as well as a lag in reaction to the event and takes into account the break in expectations around the threshold. The model requires several dummy variables. σ_t is a dummy variable for the calendar year, while λ_{ft} refers to firm specific characteristics, such as age, firm size, leverage, RoA and other control variables. According to Assumption 1, these control variables should not be necessary, but to ensure no interference from interaction variables I include these in my model. The coefficients β^{τ}, $\gamma_{\tau}^{l}$and γ_{τ}^{r} can be either negative or positive for $\tau > 1$ and are 0 for $\tau = 0$. Presumably, the parameters would be positive for general governance provisions and negative for takeover defense provisions,

indicating a decrease in bond yield spreads. I presume that most of the bond price reaction will be captured at day t. Therefore, the final formula yields:

(1) $$y_{f,t+\tau} = \beta^{\tau} \sum_{A=1}^{N} D_{ft}^{A} + \left[f_l\left(\sum_{A=1}^{N} v_{ft}^{A}, \gamma_{\tau}^{A,l}\right) + f_r\left(\sum_{A=1}^{N} v_{ft}^{A}, \gamma_{\tau}^{A,r}\right)\right] + \sigma_t + \lambda_{ft} + \varepsilon_{f,t\tau}.$$

This equation therefore shows the average effect of all governance proposals within one firm for a certain meeting date. I will use this expression first for all types of governance proposals but then limit A to only antitakeover provisions. The model aggregates all firm specific bond returns after different governance proposals and then plots a line for best fit of bond returns in relation to voting share as an output of this discontinuous regression model.

4. Analysis

First, the data is analyzed for goodness of fit and general descriptive tendencies. The descriptive statistics show, that the distribution of companies across years is right skewed. Showing that most votes fail by a small margin rather than passing. Figure 2 also shows that for certain vote spreads there are very few data points. This would be a limitation to the data, as there is an unequal amount of data points on both sides of the threshold, however due to the large amount of data overall this should not prove to be an issue. There is a large variance from vote spread to vote spread, with over 2500 observations displaying a vote spread of -10% to -9% from their threshold, while only roughly 30 observations show a vote spread of +9% to +10% away from the passing threshold. The data seems to prove the point that more votes fail at annual general meetings than pass and that because of this, prior expectations could be formed, which expect the failing of a vote by default, influencing assumption 2. When inspecting the frequency distribution of firms over the years it can be observed, that the most votes occur in 2009 and 2010 (Figure 3). There are also a lot of votes in the year 2008, which can be justified by the financial crisis. The most amount of uncertainty and necessity for change was during this time, therefore it seems reasonable that a lot of votes were proposed during

those turbulent times. Votes are more likely to pass if the company is under duress, because the shareholder would like to see a turnaround, leading the company into prosperity and security again.

To ensure that all interaction variables are indeed non-influential on the regression outcome, the data is tested for correlation and difference in means for the sample that passed the proposal and for the sample, which rejected the proposal. The correlation matrix (Figure 4) shows, that the control variables are not strongly correlated to the yield spread on day t=0 and all controls float around zero correlation, indicating no correlation between yield spread and the control variables. Therefore, I can conclude that the yield spread is indeed independent of the control variables. Here, it can also be observed that variables which relate to each other are strongly correlated. For example, the Debt to Equity ratio is negatively correlated to the z-score, indicating that a larger debt ratio increases the likelihood of bankruptcy. Alternatively, Return on Equity is positively correlated with the z-score, a higher return makes the company saver. These factors are also part of the calculation of the z-score factors. Even though the control variables interact with each other, there is no evidence to suggest they interact with our observations. Another test, which compares the mean of the control variables for the sample where a proposal passes to firms where a proposal is rejected, shows that on average the firms where a proposal passes, return worse values for the control variables, indicating riskier firm characteristics (Figure 5). The z-score for firms where a proposal passes seems to be lower, this is also the case for Return on Equity, Return on Assets and Market to Book value. While the Debt to Equity ratio is higher, indicating proposals pass for firms with a worse return rate and higher debt. A possible explanation could be that these worse performing and riskier firms have a higher need to alter their governance and firm performance and thus the proposals are more likely to pass than for firms where the performance seems to be doing better, implicitly influencing assumption 2 as well as 1. The asset base and EBITDA as well as CAPEX

performance cannot be compared to each other, as the companies all have different sizes and products. Hence no conclusions can be derived from this data. The ratios previously mentioned are comparable, as they show relative performance measures which can be compared between firms. There are still some natural differences due to for example product base, as an IT company has less assets than a food manufacturer for example, simply due to the nature of their product base. But under the assumption that those types of firms are evenly spread over the sample it is unlikely that this is the deciding factor in the difference in performance measures for companies where the proposals pass compared to companies where the proposals fail. The difference in performance measures is not large enough to conclude anything about the firm characteristics in absolute terms and therefore the analysis is continued, without correcting for those control variables. When coming to the main analysis, the relationship between all corporate governance proposal voting outcomes and the yield spread is examined first, to test hypotheses 1a and 1b. The output shows that the model exhibits a discontinuity which is strongly significant at the 1% level and leads to an estimated jump in the regression of 0.29 (Figure 6 & 7). this means the yield spread increases by 0.29 percentage points once a corporate governance related vote has passed, indicating that passing additional governance proposals in a company increases the yield spread and in turn means a value loss for bondholders. The results are robust at a 5% distance away from the threshold and at a 2 % distance away from the passing threshold. The effect amplifies the smaller the observation window becomes. This supports the logic for a rd design, as the market can seemingly predict the voting outcome beforehand, thus the reaction becomes less visible, the larger the voting bandwidth, is away from the passing threshold. The adjusted R squared also improves as the bandwidth becomes smaller from 0.09 to 0.83 for a 10% bandwidth compared to a 2% bandwidth respectively. This test therefore is proof for hypothesis 1a and rejects hypothesis 1b. The passing of a corporate governance proposal indicates a positive jump in bond yield spreads, in turn decreasing the value to

bondholders. This analysis focuses on all general governance provisions but does not particularly relate to any specific type of governance proposal. Therefore, hypotheses 2a and 2b are tested next to see if takeover defenses have an amplifying effect on bond yield spreads when compared to general governance provisions or not. Here, the drop at the cut-off point is clearly visible. The yield spread decreases drastically at the threshold and remains at a lower level throughout the data points for all passed proposals (Figure 9). This is therefore proof, for hypothesis 2a and rejects hypothesis 2b. There is a quantifiable advantage of adding takeover defenses to a firm for bondholders. What is additionally interesting to observe is that the yield spread seems to increase at the line of best fit for proposals which fail by a small margin, possibly to punish or show the disagreement of bondholders with this decision. The test for discontinuity here shows, that the yield spread increases significantly at the 1% level. The amount of this advantage is -1.77 (Figure 8) percentage points by which the bond yield spread is lowered. Again, these estimates are robust at smaller bandwidths and the effect amplifies to a -2.19 percentage points decrease in yield spread for an addition in takeover defenses. The adjusted R squared which indicates the fit of the model also improves drastically from 0.02 to 0.88 for the 2% bandwidth sample. This research paper in conclusion only found support for the *wealth redistribution theory*, as both hypotheses support this theory, while the other two hypotheses in support of the *management disciplining hypothesis* had to be rejected. These results were robust at the 1% level and when reducing the bandwidth to 5% on either side of the threshold or 2% on either side of the threshold the effect only becomes stronger.

5. Discussion

In general, I can conclude, a small jump in the regression discontinuity design is observable at the cut-off point for corporate governance related proposals. This effect reverses when looking at takeover defenses. The control variables show no significant interaction with the yield and therefore this jump in yield spreads at the threshold must stem from the change in expectations due to a decision made at the voting date. This is a sign that the addition of takeover defenses in governance provision decreases the yield spread and increases bondholder returns, at least in the short term. The findings therefore entirely support the *wealth redistribution hypothesis* while there was no evidence in support of the *management disciplining hypothesis.* This paper contains some natural limitations. Proposals and voting decisions of shareholders are non-binding for management and accordingly an accepted proposal does not translate to an automatic implementation of the proposal. Especially around close call votes the likelihood of a proposal not being implemented if it has 51% of the votes is more justifiable by management than for a proposal which was accepted with an overwhelming majority. Similarly, a proposal which just failed might still be implemented by management. Thus, the true reaction of bondholders to a proposal cannot be captured entirely by this methodology. The jump in yield spreads also includes some of the effect that the passing of one vote increases the likelihood of future votes passing, thus including additional governance mechanisms later on. Therefore, the jump in yield spreads includes this probability which is also hard to quantify or remove. An additional limitation of this research methodology is the endogeneity issue which arises between the dependent variable and the error term in the model. This means, that the dependent variable, in this case, yield spread could be correlated to the error term instead of the vote spread variable. This endogeneity relation would deliver significant results. The outcome would not be proof for a relationship between voting outcome and yield spread, but instead some unknown variable which is unrelated to the voting outcome.

All possible interaction variables were tested for correlation and change before and after a voting event and no significant interaction was found. Therefore, it seems unlikely that an interaction term between the dependent variable and the error term arises in this research study. The possibility of such an impact, however, can never be fully excluded.

I only look at US firms and use a period which is turbulent in terms of general market performance, despite correcting for external market factors by using yield spreads, the reaction might be more or less sensitive to firm specific actions, depending on the underlying market conditions. Further research could also focus on the effect ownership segmentation of institutional or inside investors has on the interaction effect between corporate governance and yield spread. Inside owners might have different interest in a firm and steer the company in a very different direction than most other institutional investors would. Another factor would be to look at the effect of sponsor identity to analyze, if there is a difference in outcome if the proposal is sponsored by an individual versus an institution. The logic behind this being that an institution will most likely approach management with their proposal directly before bringing it to a vote and will only issue a shareholder proposal if the idea was met with resistance by the management. Therefore, the proposal could potentially have a more disruptive effect on the firm and worsen the impact on bondholders. Lastly, I would be curious to see if the effect might be stronger for the bonds with the highest yields versus those with the lowest yield in a firm, as the lower yield bonds are most likely more senior and therefore better protected from harsh firm actions, whereas bonds with higher yields would be less protected and their reaction to a change in governance provisions might be more drastic, as it impacts those bondholders more strongly. In general, I found strong evidence for the support of the *wealth redistribution hypothesis*. Further research is required to strengthen and reconfirm this relationship. However, I hope to have made a case for future research which needs to explore the topic of bondholder value and its implications.

6. References

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7. Appendix

Figure 1: Bond returns in Reaction to Vote Share

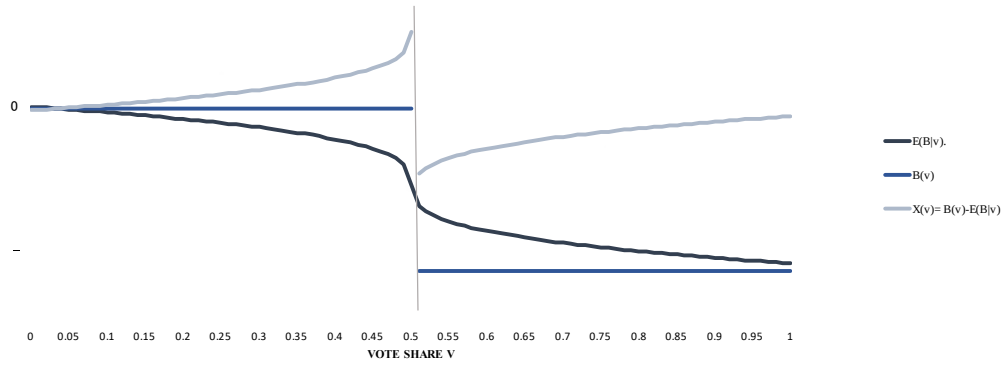

Figure 1: Market expectations and excess return development across vote percentages

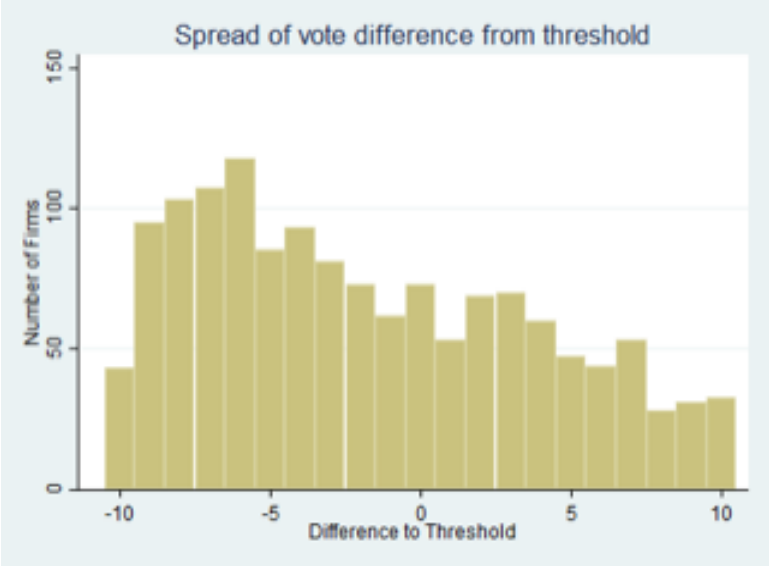

Figure 2: Frequency of firms with spread of vote differences

Year	Frequency	Percent	Cumulative
2006	1,121	5.90%	5.90%
2007	994	5.23%	11.13%
2008	2,234	11.75%	22.88%
2009	4,597	24.19%	47.07%
2010	4,482	23.58%	70.65%
2011	1,305	6.87%	77.52%
2012	939	4.94%	82.46%
2013	635	3.34%	85.80%
2014	55	0.29%	86.09%
2015	1,184	6.23%	92.32%
2016	903	4.75%	97.07%
2017	557	2.93%	100.00%
Total	19,006	100%	

Figure 3: Frequency of observations per year

	Yield Spread	ROA	Z-Score	Market to Book	Debt to Equity	Assets	Market value	Return on Equity	EBITDA	Capex
Yield Spread	1.000									
ROA	0.082	1.000								
Z-Score	0.213	0.631	1.000							
Market to Book	0.052	0.183	0.348	1.000						
Debt to Equity	0.016	-0.193	-0.241	0.349	1.000					
Assets	-0.077	-0.046	-0.145	-0.088	0.006	1.000				
Market value	-0.044	0.249	0.249	0.124	0.086	0.716	1.000			
Return on Equity	-0.007	0.751	0.369	0.346	-0.057	-0.003	0.173	1.000		
EBITDA	-0.072	0.166	0.063	-0.004	-0.039	0.803	0.856	0.129	1.000	
Capex	-0.065	-0.091	-0.171	-0.110	-0.011	0.738	0.548	-0.057	0.784	1.000

Figure 4: Correlation matrix of yield spread and control variables

		Mean	Std. Error	95% Conf. Interval	
RoA	Vote Rejected	6.82	0.42	5.99	7.65
	Vote Passed	5.00	0.55	4.58	6.73
Z-Score	Vote Rejected	3.15	0.11	2.94	3.36
	Vote Passed	2.97	0.17	2.65	3.29
Market to Book	Vote Rejected	4.36	0.30	3.76	4.96
	Vote Passed	3.51	0.28	2.95	4.06
Debt to Equity	Vote Rejected	4.36	0.30	3.76	4.96
	Vote Passed	3.51	0.28	2.95	4.06
Assets	Vote Rejected	64345.93	5143.84	54235.06	74456.80
	Vote Passed	38023.56	4043.27	30075.43	45971.14
Market value	Vote Rejected	72872.31	5106.00	62834.80	82907.82
	Vote Passed	37007.45	3558.67	30082.43	44072.47
Return on Equity	Vote Rejected	20.53	1.47	17.64	23.43
	Vote Passed	15.10	1.90	11.37	18.83
EBITDA	Vote Rejected	9455.18	717.68	8044.49	10865.87
	Vote Passed	5302.89	631.78	4061.05	6544.73
Capex	Vote Rejected	3308.98	311.15	2697.38	3920.58
	Vote Passed	2808.54	445.50	1932.85	3684.23

Figure 5: Means for control variables in firms with passed and rejected proposals

Governance	**10% Threshold (1)**	**5% Threshold (2)**	**2% Threshold (3)**
RD Estimate	0.2932***	0.4347***	1.5796***
p-value	8.39E-10	3.16E-16	2.20E-16
Adjusted R squared	0.0935	0.1273	0.8166
Clustered	NO	NO	NO
Linear	YES	YES	YES
Firm Controls	NO	NO	NO
Observations	18,957	8,430	3,106

Figure 6: Regression output CG yield per vote spread for different thresholds

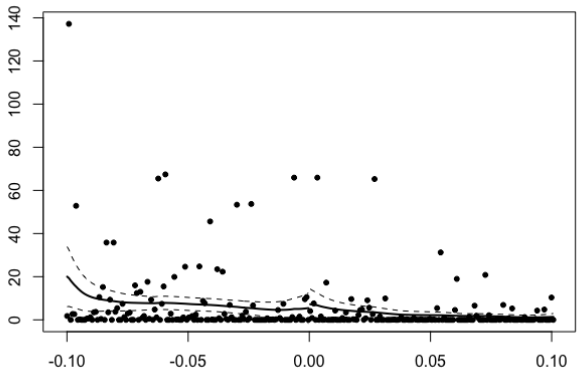

Figure 7: Graph of CG yield per vote spread

Antitakeover Protection	**10% Threshold (1)**	**5% Threshold (2)**	**2% Threshold (3)**
RD Estimate	-1.769***	-1.996***	-2.187***
p-value	2.20E-16	2.20E-16	2.20E-16
Adjusted R squared	0.0147	0.4680	0.8764
Clustered	NO	NO	NO
Linear	YES	YES	YES
Firm Controls	NO	NO	NO
Observations	6,738	4,287	1,604

Figure 8: Regression output Takeover defense addition yield per vote spread for different thresholds

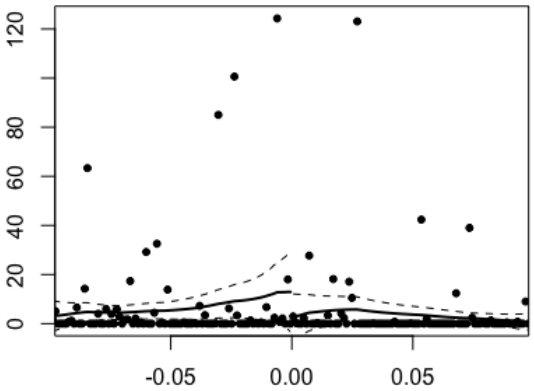

Figure 9: Graph of Takeover defense addition yield per vote spread